CHAPTER TWELVE
COMPUTER-RELATED NERVE INJURIES

The hand has three major nerves: the median, ulnar, and radial nerves. All three travel from the spine through the shoulder, elbow, forearm, and wrist on their way to the hand, providing motion and sensation as they go. If they’re pinched or rubbed by tendons, muscles, or bones anywhere along the way, they can be entrapped. When a nerve is entrapped, blood flow to the area decreases — so the blood vessels dilate, causing swelling, which in turn causes more nerve compression. If this cycle isn’t interrupted by treatment, the nerve can degenerate and be permanently damaged. If you’re experiencing the symptoms of nerve-related RSI, see a medical professional immediately.

Thoracic Outlet Syndrome

*What it is:* compressed nerves and/or blood vessels in the area between the neck and either shoulder

*Symptoms:*
- neck pain
- shoulder pain
- upper chest pain
- numbness and tingling in the hand and arm
- pain in the fingers, hand, and arm
- weakness, swelling, or coolness in the hand and arm

To reduce the risk of both Thoracic Outlet and Cubital Tunnel Syndromes, stay within these recommended ranges of movement:

*Top:* Neck Flexion: 0°-15° (bending forward); Shoulder Flexion: 0°-25° (forward reach)
*Bottom:* Elbow: 75°-90° (straight down is 0°); Wrist Extension: 0°-10° (upwards)
**Mouse KeyDo’s**

**To prevent Thoracic Outlet Syndrome:**
- Use the tripod sit.
- Keep chin tucked in.
- Keep upper arms at side.
- Use pelvic tilt and pelvic rock to reach forward.

**To prevent Cubital Tunnel Syndrome:**
- Place keyboard slightly below elbow height.
- Keep wrists neutral or slightly extended.
- Avoid twisting your wrists and fingers sideways.
- Don’t lean on your elbow.
- Paws, not claws.
- Snake the wrist while using the mouse.

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**Associated movements:**
- poor posture (slouching)
- bending the neck forward
- reaching forward

**Possible computer-related causes:**
- keyboard too high, too low, or too far away
- arm rests too high or too low
- desktop too high, too low, or too far away
- cradling a telephone between neck and shoulder while typing

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**Cubital Tunnel Syndrome**

*What it is:* entrapment of the ulnar nerve at the elbow

*Symptoms:*
- hand, wrist, and forearm pain along the little finger side of the arm
- numbness and tingling in the ring finger and little finger

*Associated movements:*
- overextending the wrist
- “sideways wrist”
- curling the fingers into claws
- curling the ring and little fingers
- reaching far forward
- hands higher than elbows

*Possible computer-related causes:*
- keyboard and mouse too high or too far away
- leaning on elbow (on armrest or desktop)
- using old home row
- straining to reach shift/enter/backspace keys
- hitting two keys at once with one hand
- “sideways wrists” using the mouse

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The pain of Thoracic Outlet Syndrome is very similar to that of Cubital Tunnel Syndrome, except it extends further up the arm to the shoulder.

In Cubital Tunnel Syndrome, pain is felt in the wrist, the ring and little fingers, and the forearm.
Carpal Tunnel Syndrome

What it is: entrapment of the median nerve at the wrist

Symptoms:
- numbness and tingling in any or all of the following: the index, middle, or ring fingers or the thumb
- weak grip
- radiating pain up the arm and into the shoulder
- wrist and finger pain, numbness, and stiffness at night and on awakening

Associated movements:
- curling fingers into claws
- extreme wrist extension (fingers in the air)
- extreme “sideways wrists”

Possible computer-related causes:
- pounding the keys
- resting on the wrist rest while typing
- using old home row
- straining to reach shift/enter/backspace keys
- hitting two keys at once with one hand
- gripping the mouse too hard

To prevent Carpal Tunnel Syndrome:
- Keep wrists relaxed and either neutral or slightly extended.
- Keep fingers soft and jiggly.
- Paws, not claws.
- Avoid gripping things with a pinching motion.
- Type lightly.
- Stretch your fingers — curl them into fists, then extend them fully, and repeat 30 times a minute for one minute several times a day.
- Stretch your wrists — bend them forward and back 30 times a minute for one minute several times a day.
- Avoid wrist splints while typing or using the mouse.

To prevent Carpal Tunnel Syndrome, stay within these ranges of movement:

Wrist Flexion: 0°-20° (bent down);
Wrist Extension: 0°-20° (bent up);
Big Knuckle: 0°-45°

In Carpal Tunnel Syndrome, pain is felt on the thumb side of the wrist and all but the little finger.
Radial Nerve Entrapment

*What it is:* entrapment of the radial nerve at the elbow

**Symptoms:**
- pain in the back of the hand, top forearm, and outer elbow

**Associated movements:**
- thumbs in the air or out to the sides
- extended fingers at the knuckles
- wrist extension
- “sideways wrists”
- repeatedly twisting the arm so the palm faces up

**Possible computer-related causes:**
- resting on the wrist rest while typing
- straining to reach shift/enter/backspace keys
- twisting fingers to hit two keys at once with one hand

Superficial Radial Nerve Entrapment

*What it is:* entrapment of a branch of the radial nerve within the back of the hand

**Symptoms:**
- numbness, tingling, and/or pain on the back of the hand over the thumb

**Associated movements:**
- repeatedly twisting the arm so the palm faces up
- turning the forearm too far in so the palm faces outward

**Possible computer-related causes:**
- resting on the wrist rest while typing
- gripping the mouse too hard